

CLAIMS

What Is Claimed Is:

1. An antenna, comprising:

5 (a) at least two conductive elements including a first conductive element having a different configuration than a second conductive element; and

(b) a fluid filled bulb positioned between the at least two conductive elements such that when the fluid filled bulb is energized, the at least two conductive elements electrically communicate with one another, and when the fluid filled bulb is not
10 energized, the at least two conductive elements do not electrically communicate with one another.

2. The antenna of claim 1, wherein at least one of the conductive elements has a linear configuration.

15

3. The antenna of claim 1, wherein one of the at least two conductive elements has a helical configuration.

4. The antenna of claim 1, wherein one of the at least two conductive elements
20 has a spiral configuration.

5. The antenna of claim 1, wherein one of the at least two conductive elements has a conical configuration.

25 6. The antenna of claim 1, wherein one of the at least two conductive elements has a horn configuration.

7. The antenna of claim 1, wherein the first conductive element includes a linear configuration, and the second conductive element includes a configuration selected from
30 the group consisting of helical, spiral, conical, horn and combinations thereof.

8. The antenna of claim 1, wherein the fluid filled bulb contains a fluid that can be energized to form a conductive plasma.

9. The antenna of claim 8, wherein the fluid is a gas.

5

10. The antenna of claim 9, wherein the gas is selected from the group consisting of argon, neon, helium, krypton, xenon, and hydrogen.

11. The antenna of claim 9, wherein the gas is a metal vapor.

10

12. The antenna of claim 11, wherein the metal vapor is mercury vapor.

13. The antenna of claim 1, wherein at least one of the at least two conductive elements is a plasma element.

15

14. The antenna of claim 1, wherein at least one of the at least two conductive elements is a metallic element.

15. An electromagnetic wave transmission and reception system, comprising:

20

(a) a first conductive element and a second conductive element;

(b) a transmitter/receiver for sending and receiving a signal to and from the first and second conductive elements;

(c) a first fluid filled bulb positioned between the first conductive element and the transmitter/receiver such that when the first fluid filled bulb is energized, the first conductive element and the transmitter/receiver electrically communicate with one another, and when the first fluid filled bulb is not energized, the first conductive element and the transmitter/receiver do not electrically communicate with one another; and

25

(d) a second fluid filled bulb positioned between the second conductive element and the transmitter/receiver such that when the second fluid filled bulb is energized, the second conductive element and the transmitter/receiver electrically communicate with

30

one another, and when the second fluid filled bulb is not energized, the second conductive element and the transmitter/receiver do not electrically communicate with one another.

16. The system of claim 15, wherein the first conductive element and the second
5 conductive element are substantially electrically isolated from one another outside of the transmitter/receiver, wherein the first conductive element and the second conductive element are part of an antenna array.

17. The system of claim 15, wherein the first and second fluid filled bulbs contain
10 a fluid that can be energized to form a conductive plasma.

18. The system of claim 17, wherein the fluid is a gas selected from the group consisting of argon, neon, helium, krypton, xenon, hydrogen, and mercury vapor.

15 19. An antenna, comprising:

(a) at least two conductive elements including a first conductive element and a second conductive element, wherein the first conductive element is configured to emit a first radiation pattern; and

(b) a fluid filled bulb positioned between the at least two conductive elements
20 such that when the fluid filled bulb is energized, the at least two conductive elements electrically communicate with one another and the at least two conductive elements work synergistically to form a second radiation pattern that is different than the first radiation pattern, and when the fluid filled bulb is not energized, the at least two conductive elements do not electrically communicate with one another.

25

20. The antenna of claim 19, wherein the first conductive element and the second conductive element are of substantially the same configuration.